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THE NATIONAL FIRE PROBLEM

OVERVIEW

The United States has a severe fire problem, more so than is generally perceived. Nationally, there are millions of fires, thousands of deaths, tens of thousands of injuries, and billions of dollar loss—which make the U.S. fire problem one of great national importance.

Although we have made much progress in the last decade, the United States continues to have one of the highest per capita fire death rates in the world. The United States has an average of 5,277 fire deaths a year from 1985 to 1994 (Figure 15). The number of deaths has been steadily trending down—32 percent over the past 10 years. In 1994, the number of deaths was 4,275.

We are less certain of the injury statistics in Figure 15 because of ambiguity about the completeness of defining and reporting minor injuries and the fact that many injured people go directly to a medical care facility themselves without going through a fire department screening. There was an average of nearly 28,700 reported civilian injuries per year from reported fires over the past 10 years and an average of 56,620 injuries to firefighters from those fires, as shown in Chapter 5, Figure 112. The actual totals for reported fires may be even higher. Furthermore, past studies suggest that the number of civilian injuries associated with fires that are not reported to the fire service might be double or more that of the number from reported fires, as discussed in Chapter 1. Fire-caused injuries to civilians trended up by 2.6 percent over the 10-year period. Injuries in 1994 were at their lowest level since 1986.

In terms of dollar loss, the estimated direct value of property destroyed in fires was \$8.2 billion for 1994. The total cost of fire (direct losses, the cost of fire departments, built-in fire protection in new buildings, insurance overhead, and other annual fire protection expenditures) is much higher. The direct dollar loss increased 21 percent from 1985 to 1994, with the increase due to inflation. Using constant 1994 dollars, the loss was down by 13 percent over this period. Still, the direct dollar loss was enormously high at an average of \$9.4 billion a year in adjusted 1994 dollars.

These casualties and losses come from an average of nearly 2.2 million fires a year. The trend in fire incidents has declined 19 percent since 1985, with the sharpest decline in 1989 but remaining steady since then.

On a per capita basis, the fire problem appears less severe today than 10 years ago, partially because the population has been increasing faster than have fires and fire casualties and partially

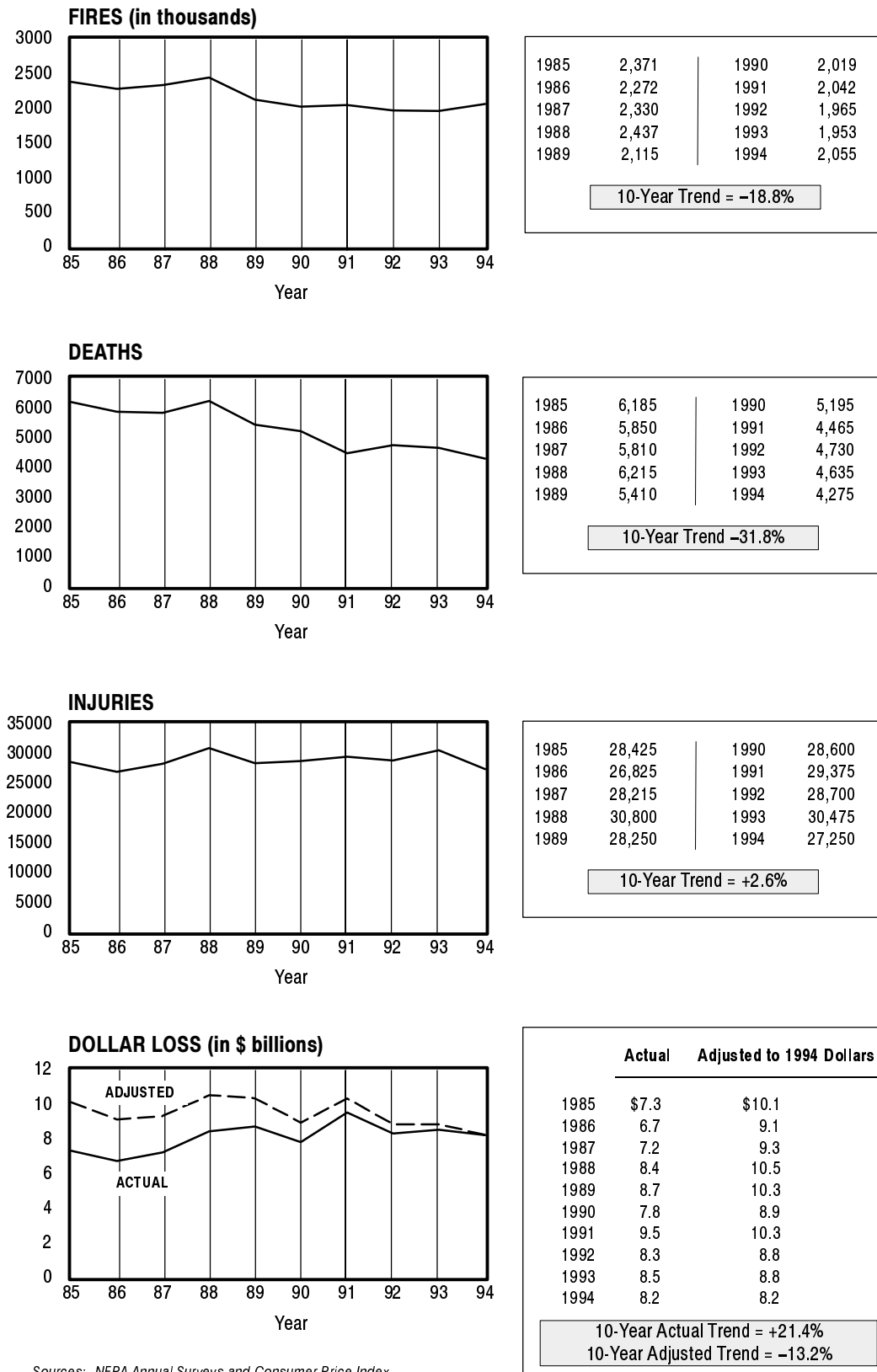


Figure 15. Trends in Fires and Fire Losses

because of the overall decline in numbers of reported fires. Over this 10-year period, reported fires averaged 8.7 per thousand population (Figure 16).

The trend in fire death rate per million population has declined a significant 38 percent. In terms of injuries, the per capita rate was down 6 percent over 10 years. Although dollar loss per capita was \$31, up 11 percent unadjusted, it trended down 26 percent over the 10 years when adjusted for inflation.

THE BROADER CONTEXT

Fires constitute a much larger problem than is generally known. Losses from all natural disasters combined—floods, hurricanes, tornadoes, earthquakes, etc.—average a fraction of the annual direct dollar losses from fire. Deaths from disasters have tended to be vastly fewer than from fires—on the order of 200 per year for disasters versus more than 4,000 for fires.

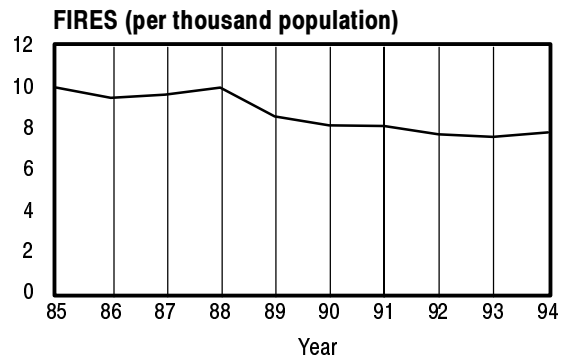
Most fires are relatively small, and their cumulative impact is not easily recognized. There are only a few fires that have the huge dollar losses that are associated with hurricanes or floods. The southern California wildland fires in the fall of 1993 resulted in over \$800 million in losses. The Oakland East Bay Hills fire of October 1991 was estimated to have caused over \$1 billion in losses. The Phillips petrochemical plant fire in the Houston ship channel in October 1989 caused several hundred million dollars in losses. But because most of the losses from fire are spread over the more than 2 million fires that are reported each year, the total loss is far more than the impression many people have of it from the anecdotal reporting of local fires in the media.

Fires also are an important cause of accidental deaths. The National Safety Council ranks fires as the fifth leading cause of accidental deaths, behind only vehicle accidents, falls, poisonings, and drownings.

Fire-related injuries to civilians and firefighters are reported with too much uncertainty to properly rank them with confidence, but it is clear that they number over 100,000 and possibly two or three times that many when injuries from unreported fires and unreported injuries from reported fires are taken into account. Burn injuries are particularly tragic because of the tremendous pain and suffering they cause. Serious burns tend to cause psychological damage as well as physical damage, and they may well involve not only the victims but also their family, friends, and fellow workers.

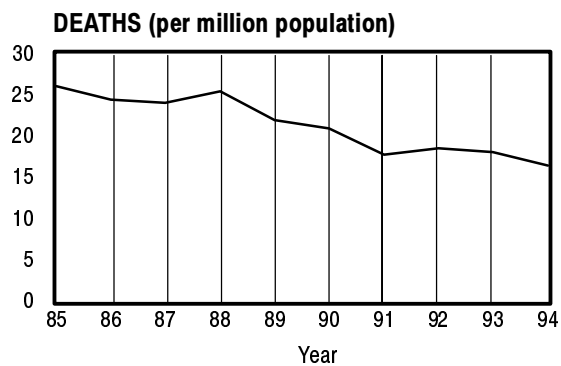
U.S. Fire Deaths Versus Other Nations

The United States has one of the most severe fire problems in the industrialized nations. Although our per capita death rate is nearly half what it was in the late 1970s, and down 38 percent since 1985, current international data (1992) suggest that the United States has a fire death rate two to three times that of several European nations and at least 20 percent higher than most. In 1992,



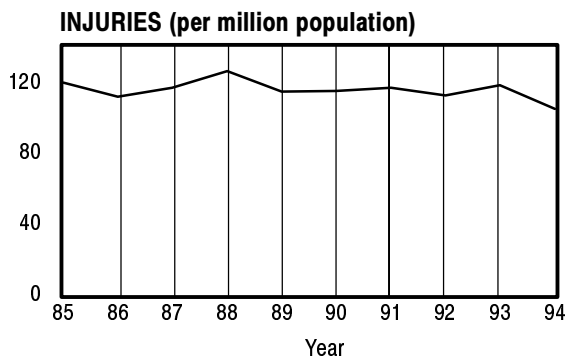
1985	9.97	1990	8.12
1986	9.46	1991	8.10
1987	9.62	1992	7.70
1988	9.97	1993	7.57
1989	8.57	1994	7.89

10-Year Trend = -25.9%



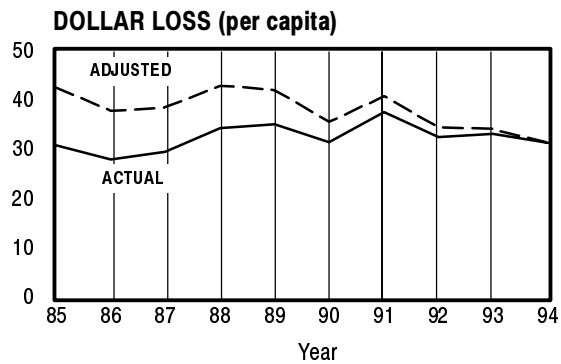
1985	26.0	1990	20.9
1986	24.4	1991	17.7
1987	24.0	1992	18.5
1988	25.4	1993	18.0
1989	21.9	1994	16.4

10-Year Trend = -37.8%



1985	119.5	1990	115.0
1986	111.7	1991	116.5
1987	116.5	1992	112.5
1988	126.0	1993	118.2
1989	114.5	1994	104.7

10-Year Trend = -6.2%



Sources: NFPA Annual Surveys, Consumer Price Index, and Bureau of the Census

	Actual	Adjusted to 1994 Dollars
1985	\$30.8	\$42.4
1986	27.9	37.8
1987	29.5	38.5
1988	34.2	42.8
1989	35.1	41.9
1990	31.4	35.6
1991	37.5	40.8
1992	32.5	34.4
1993	33.1	34.0
1994	31.3	31.3

10-Year Actual Trend = +11.1%
10-Year Adjusted Trend = -26.2%

Figure 16. Trends in Severity of Fires and Fire Losses

our fire death rate was reported at 19.5 deaths per million population.¹ Switzerland's rate was 5.3 per million population; Canada's was 15.8. In fact, of the 14 industrial nations that are examined in detail in Chapter 6, the U.S. rate was higher than all but one—Hungary.

The declining U.S. trend in fire death rate over the past 10 years was not a singular event; all countries except Hungary and Denmark also trended downward. Furthermore, although statistical data are not available, the United States is widely believed to have many more residential fires on a per capita basis than any of the 13 countries studied.

The United States has placed greater emphasis on improving the technology in fire suppression and fire service delivery mechanisms than other nations, but these nations tend to surpass the U.S. in practicing fire prevention. The United States would be well served by studying and implementing international fire prevention programs that have proved effective in reducing the number of fires and deaths.

Total Cost of Fire

The total cost of fire to society is staggering—over \$100 billion per year.² This includes the cost of adding fire protection to buildings, the cost of paid fire departments, the equivalent cost of volunteer fire departments (\$20 billion annually), the cost of insurance overhead, the direct cost of fire-related losses, the medical cost of fire injuries, and other direct and indirect costs. Even if these numbers are high by as much as 100 percent, the total costs of fire would range from \$50 to \$100 billion, still enormous, and on the order of 1 to 2 percent of the gross domestic product, which was \$6.74 trillion in 1994.³ Thus from a monetary viewpoint, fire ranks among the significant national problems. A detailed examination of the total cost of fire to U.S. society is presented as a special topic in Chapter 6.

FIRE CASUALTIES BY POPULATION GROUP

The fire problem is more severe for certain groups than others. People in the Southeast, males, the old, and the very young all are at much higher risk from fires than the rest of the population.

Regional Differences

The Southeast of the United States continues to have the highest fire death rate in the nation and one of the highest in the world. Figure 17 shows the states with the highest fire death rates for

¹ World Fire Statistics Centre. Using NFPA estimates and Bureau of the Census data, however, the 1992 U.S. fire death rate is computed at 18.5 per million population.

² Meade, William P., *A First Pass at Computing the Cost of Fire in a Modern Society*, The Herndon Group, Inc., February 1991.

³ U.S. Department of Commerce's Bureau of Economic Analysis.

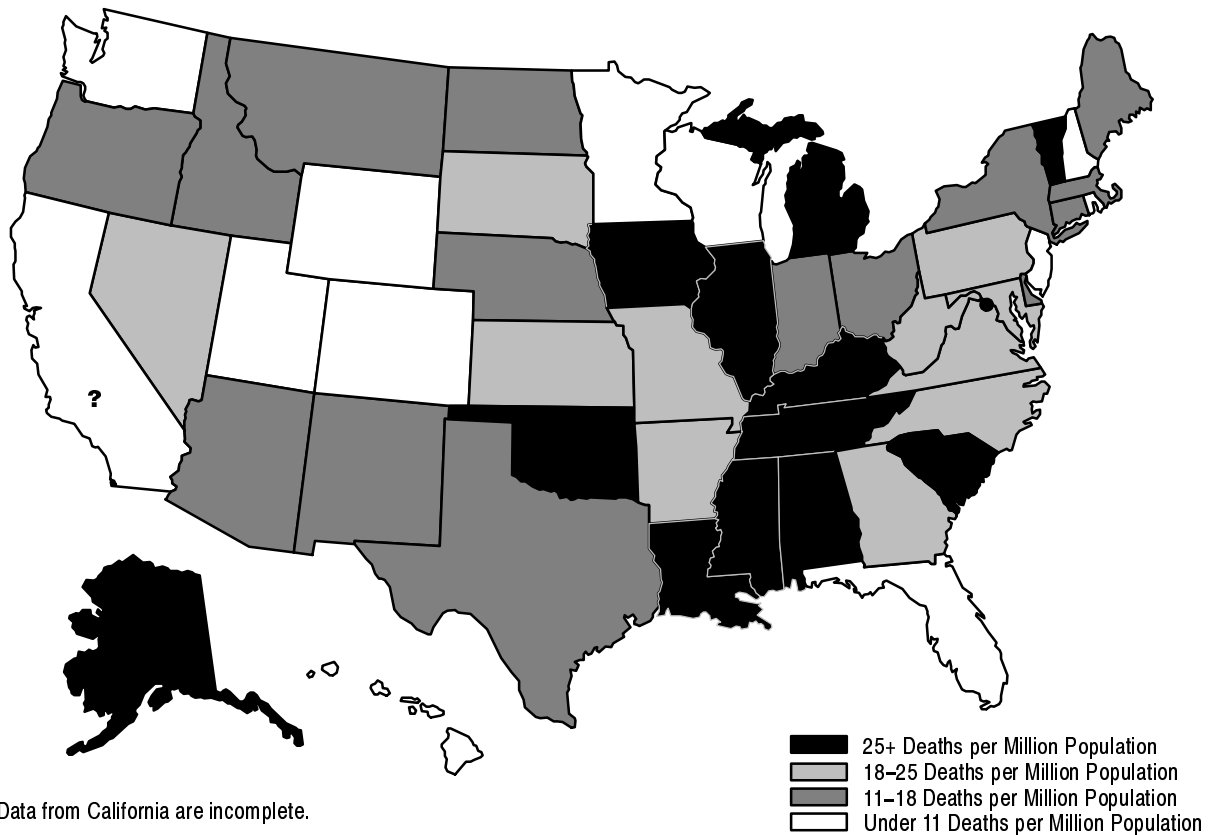


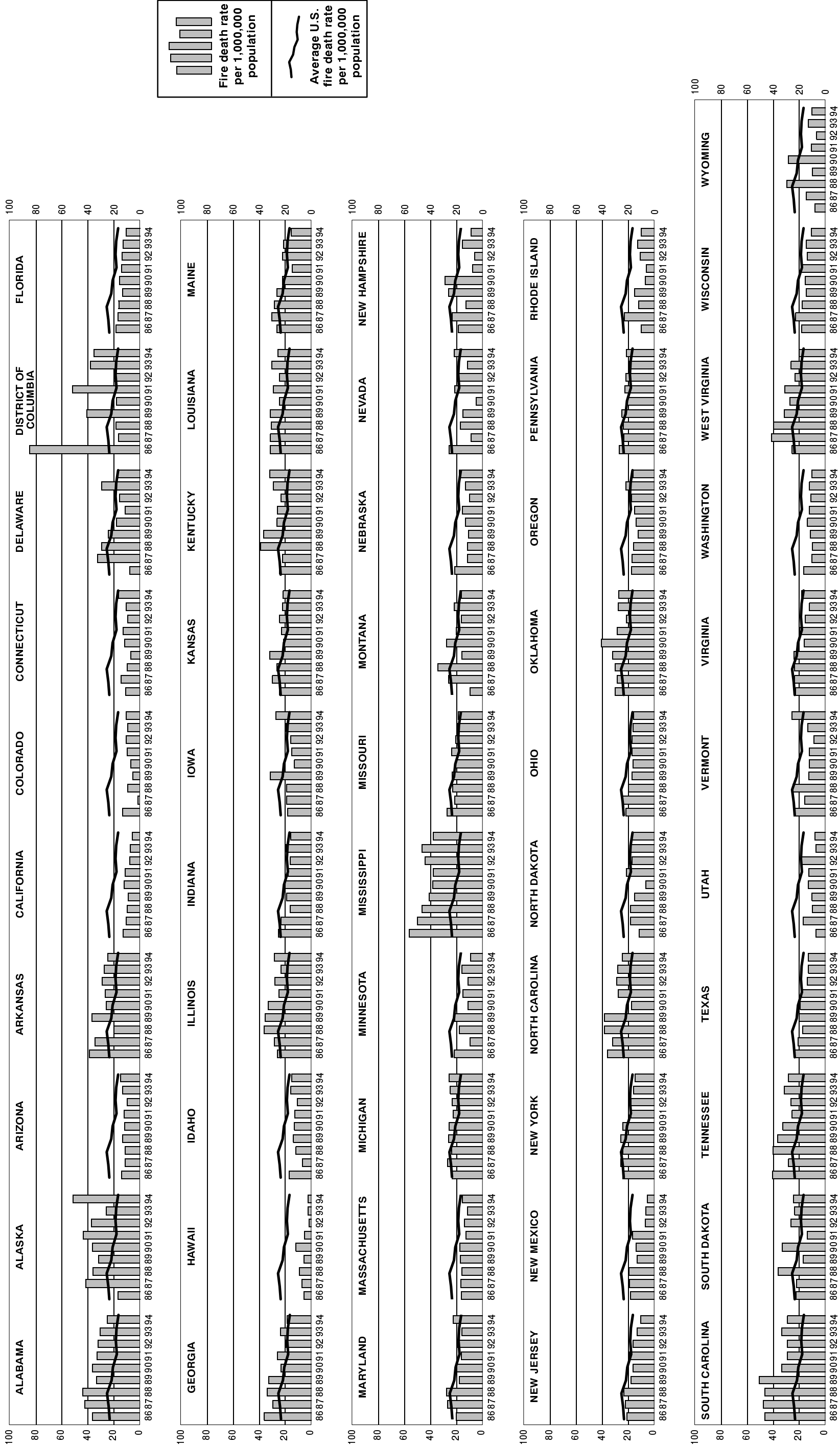
Figure 17. Fire Death Rate by State in 1994

1994. Although considerable improvements have been seen in the death rates of the southeastern states, nearly half of these still have death rates in the highest category, here at 25 or more deaths per million population. In addition to the Southeast, the states of Alaska, Illinois, Iowa, Michigan, Vermont, and the District of Columbia were in the highest fire death rate category in 1994. The Southeast and Alaska have been consistently among the highest fire death rate areas for many years; however, their rates have been dropping along with those of the whole nation.

The next two categories of states in Figure 17, the shaded and the striped, still have fire death rates higher than many of the developed nations in Europe and the Far East. At the other extreme are the states with no shading. These “best” states are in the general range of the nations of Europe and the Far East. They tend to be the Southwest and West states, but there are some noteworthy others: Florida, Minnesota, New Hampshire, New Jersey, Rhode Island, and Wisconsin all had a low year in 1994. Florida has the lowest death rate among the high population states.⁴

Fire death rates for each state and the District of Columbia for the past 9 years are shown in Figure 18 (data for 1985 were unavailable). An overlay on each state chart represents the national

⁴ California has had the lowest death rate. For 1994, however, the California fire death statistics are incomplete.



Source: State Fire Marshals

Figure 18. 9-Year Fire Death Rate by State Compared to National Average

fire death rates. Eleven states are consistently above the national average and 18 states are consistently below it. The fire profile by state will be published separately in 1997.

The rank order of state fire death rates per million population is shown in Figure 19. States with relatively small populations may move up and down on the list from year to year as a result of only a few deaths; their death rate should be considered averaged over time. For example, both New Hampshire and Wyoming changed from one of the highest death rates from fires in 1990 to among the lowest in 1994; Iowa and Vermont were the only states to go from best to worse. The highest states were Alaska, Mississippi, District of Columbia, and Kentucky. The lowest were Hawaii, New Mexico, Utah, New Hampshire, and Minnesota.

Figure 20 shows the rank order of states in terms of the absolute number of fire deaths. Not surprisingly, large population states are at the top of the list. The 10 states with the most fire deaths account for nearly half of the national total. Unless their fire problems are significantly reduced, the national total will be difficult to lower.

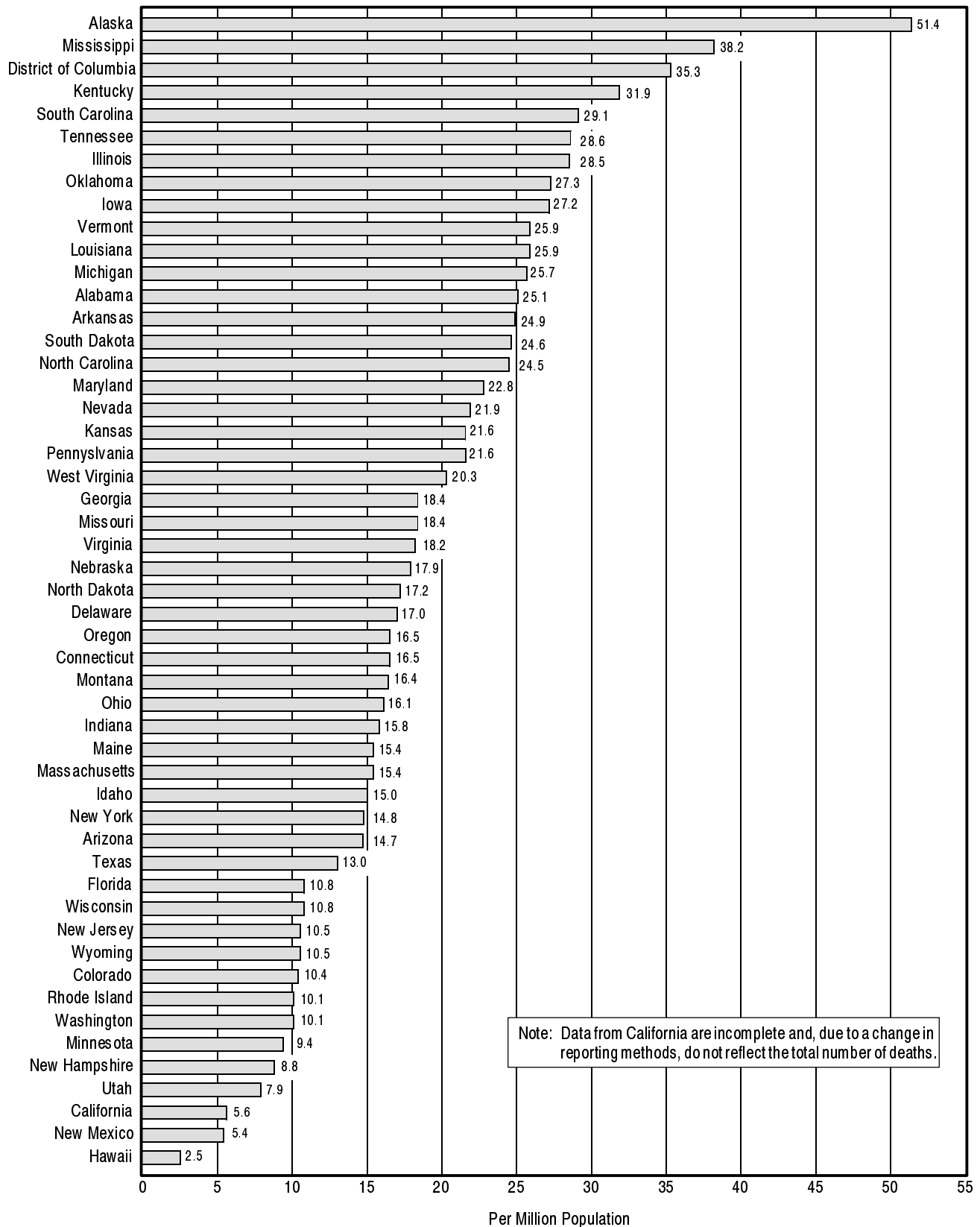
The sum of the state death estimates in Figure 20 is nearly 150 deaths below the estimate of 4,275 from the NFPA survey for 1994. This difference may be due to some states underreporting their fire deaths, such as California, or an overestimate from the extrapolation of the NFPA sample of fire departments, or a combination of both. Nevertheless, the correspondence between the two sources should be considered quite good.

Gender

Men continue to have almost twice as many fire deaths as women. Figure 21 shows that the high proportion of male fire deaths has been remarkably steady over the past 10 years. The slight trend toward narrowing the gap between male and female fire deaths appears to have stopped in 1990. Males also have a higher fire death rate per capita than females for essentially all age groups. From the age of 20 on, males have twice the fire death rate as women (Figure 22).

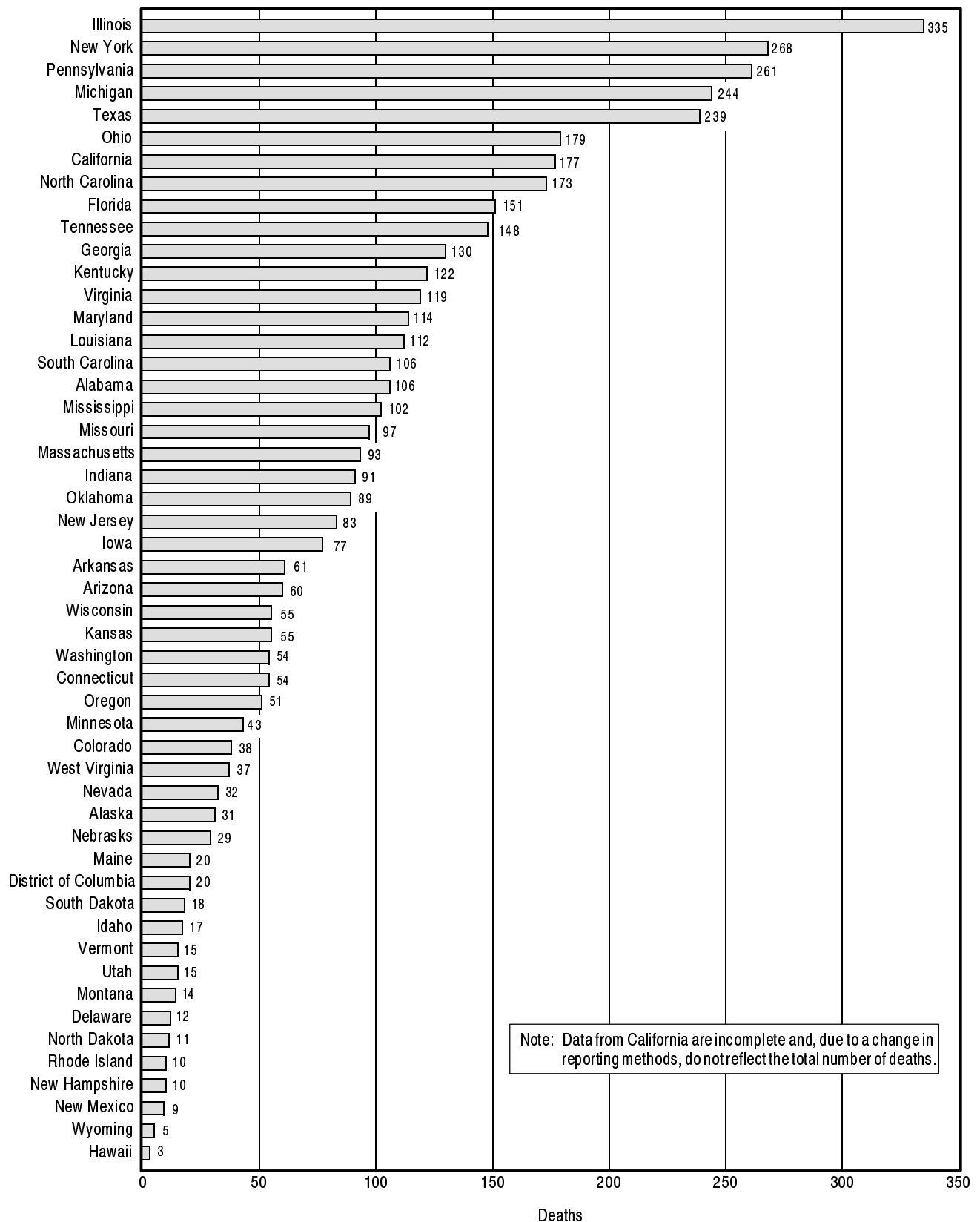
Figure 21 also shows that the male/female ratio for fire injuries is similar to that for fire deaths except that the gender gap is narrowing. Injuries per capita for males are one and one-half to two times the female rate until age 70 (Figure 22), which can be expected because of the longer lifespan of women.

The reasons for the disparity of fire injuries between men and women are not known for certain. Suppositions include the greater likelihood of men being intoxicated, the more dangerous occupations of men (most industrial fire fatalities are males), and the greater use of gasoline and other flammable liquids by men. We do know that men have more injuries trying to react to the fire than do women.



Source: State Fire Marshals

Figure 19. Rank Order of States by Severity of 1994 Civilian Deaths



Source: State Fire Marshals

Figure 20. Rank Order of States by 1994 Civilian Deaths

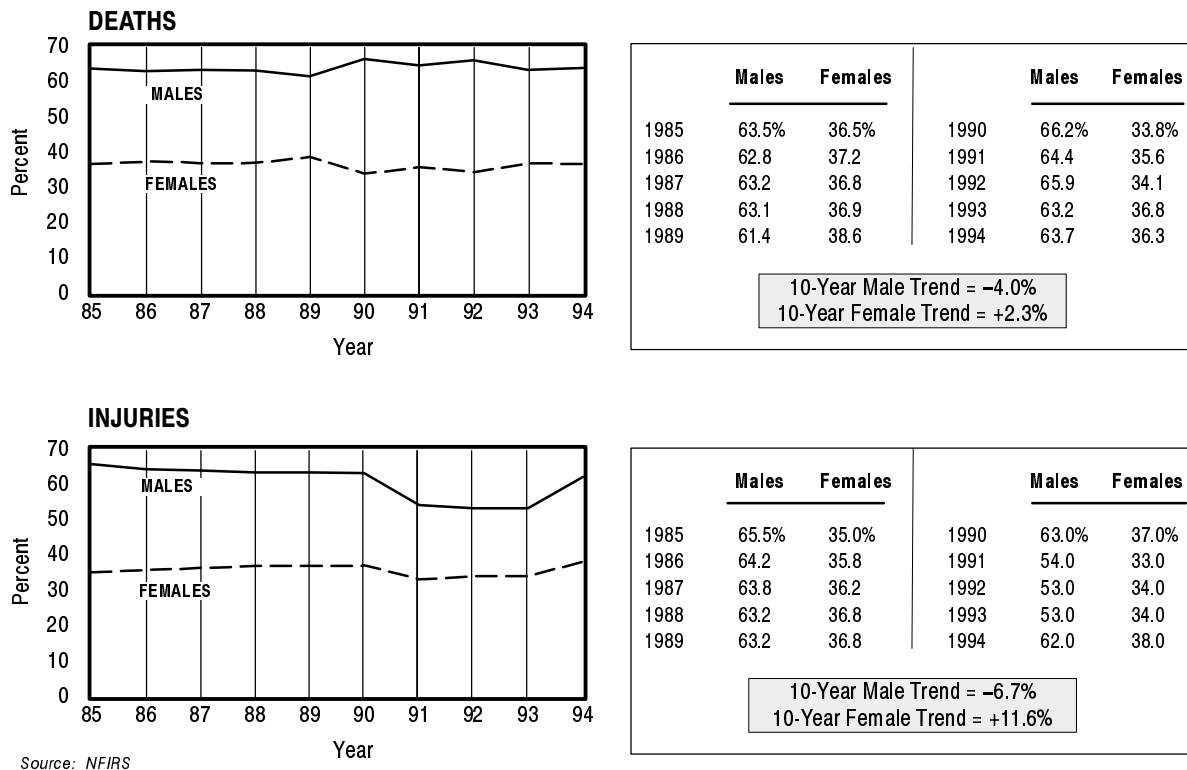


Figure 21. Trends in Male vs. Female Casualties

Age

People over 70 have a much higher fire death rate than the average population, as shown in Figure 23. At the other end of the age spectrum, the very young (under 5) have a much higher than average problem too. The relative risk of dying and being injured in a fire for various age groups is shown in Figure 24. (The population as a whole has a relative risk of 1.) Children under 5 have nearly double the risk of death, children over 5 have less than average risk.⁵ Risk of fire death drops off sharply between 5 and 19, then experiences minimal change until age 55. At age 55, the risk begins to increase. By age 70, there is a jump in risk; and above age 80, the risk is even higher than for the very young.

Contrary to what might be expected, the age profile of risk from injuries is very different from that for deaths. The risk of injury in a fire is highest for those aged 20–34. The risk of injury is below average for infants and children and for elderly 65–79. Over 80, the risk is above average.

Figure 25 shows the percent of 1994 fire deaths and injuries falling into each age group. (This is not the same as risk.) Those under age 5 account for 16 percent of the deaths with age reported—by far the highest proportion for any age group. Those 70 and above comprise 20 percent of the fire

⁵ For those interested in data reliability issues, there is some concern over the coding of the ages of infants less than 1 year old. Some code them as 1, some as 0, and some to the nearest integer of 0 or 1. Also, some fire departments or states fill in blank fields with zeros. Thus, the number of casualties with age 0 has been suspect. By dropping age profiles with 0's, the difference was small; the category 0–4 still had a relative risk of nearly 2.

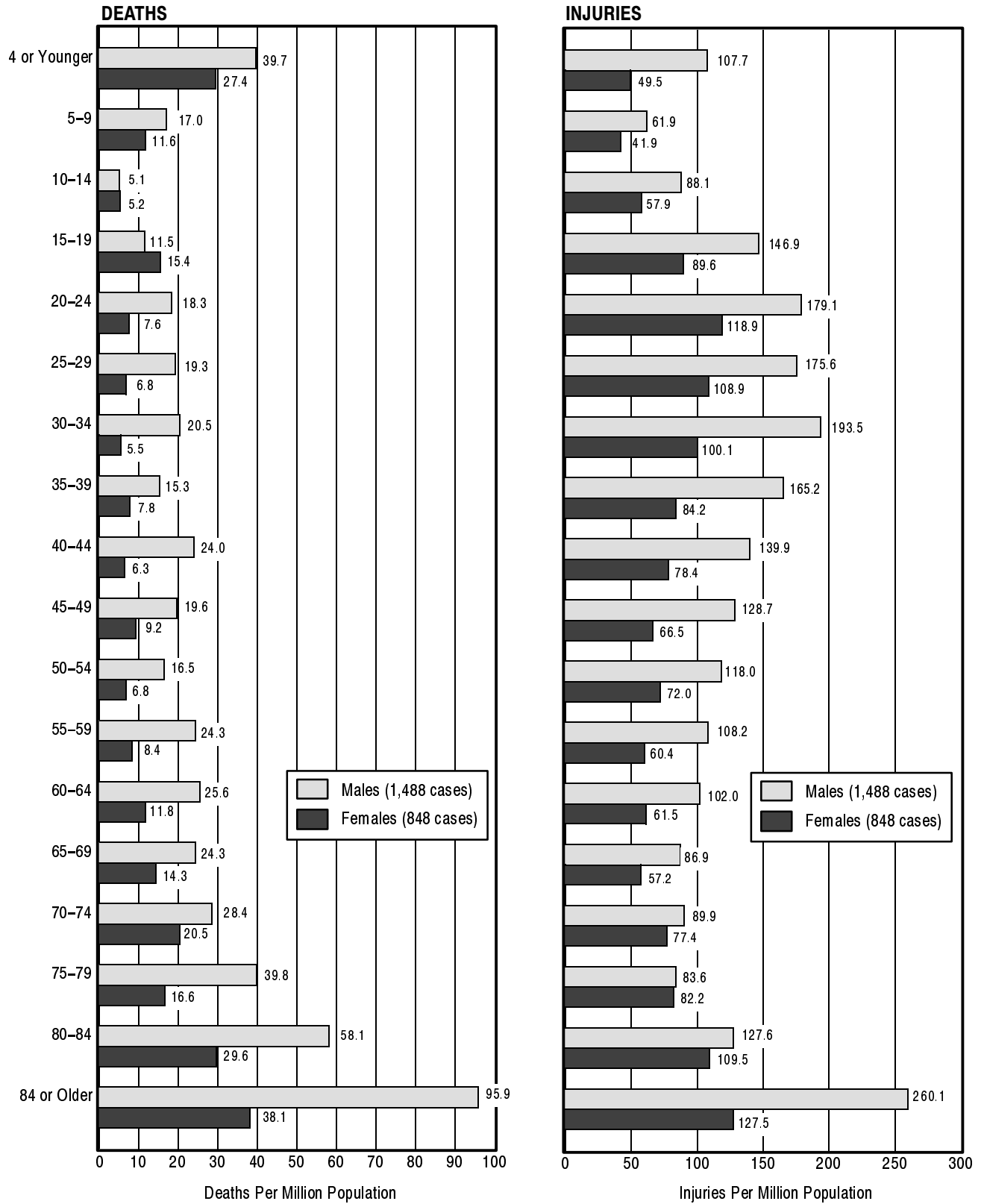
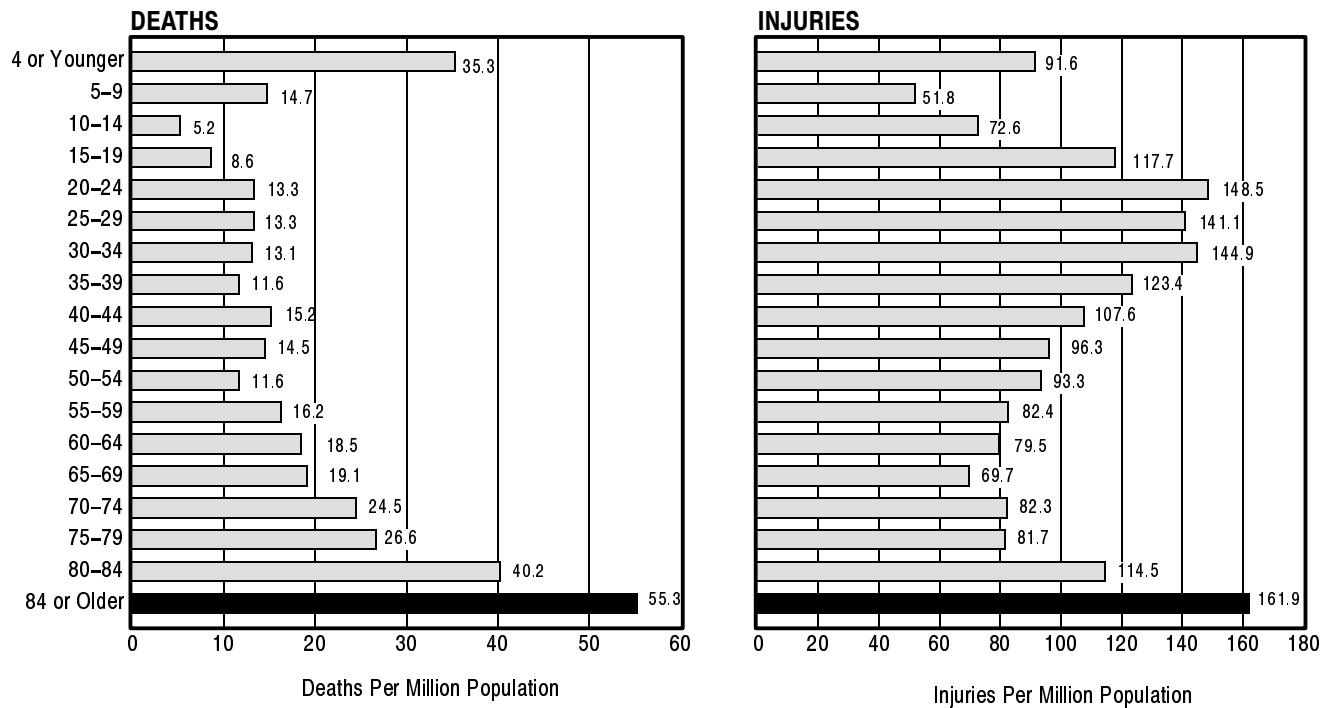
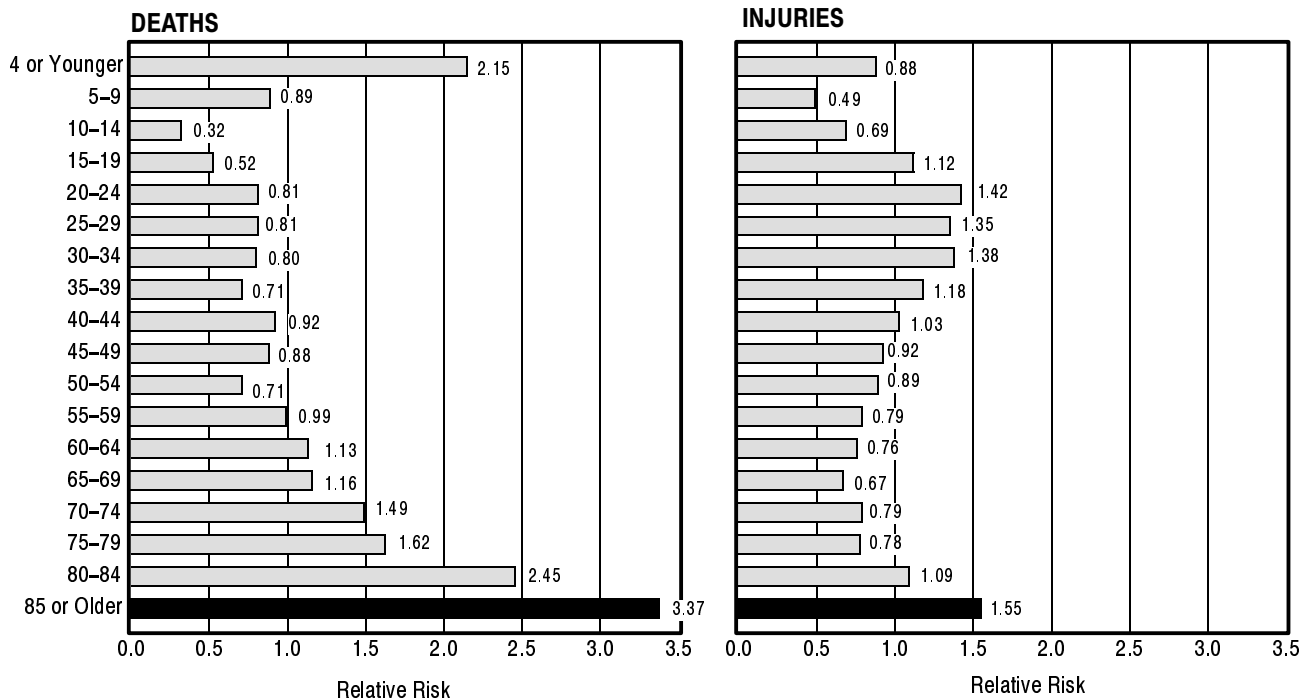


Figure 22. Severity of 1994 Fire Casualties by Age and Gender



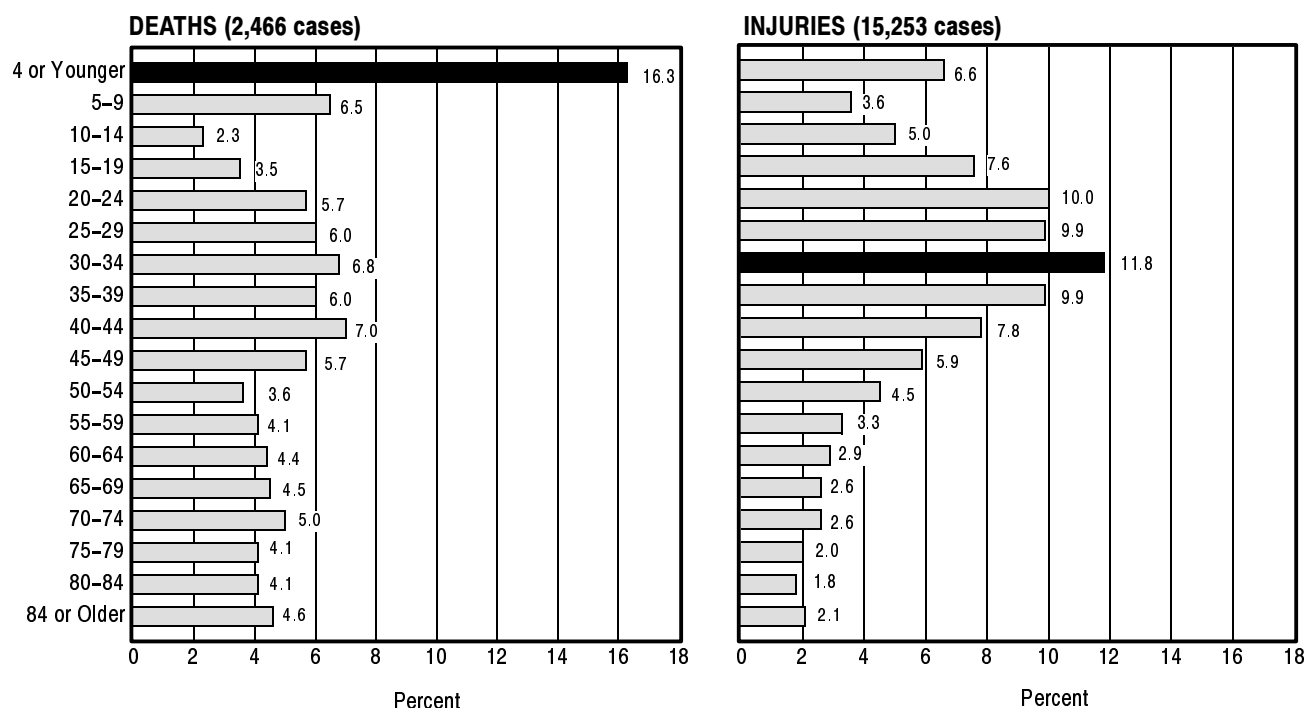
Sources: NFIRS, NFPA Annual Surveys, and Bureau of the Census

Figure 23. Severity of 1994 Fire Casualties by Age



Sources: NFIRS, NFPA Annual Surveys, and Bureau of the Census

Figure 24. Relative Risk of 1994 Fire Casualties by Age



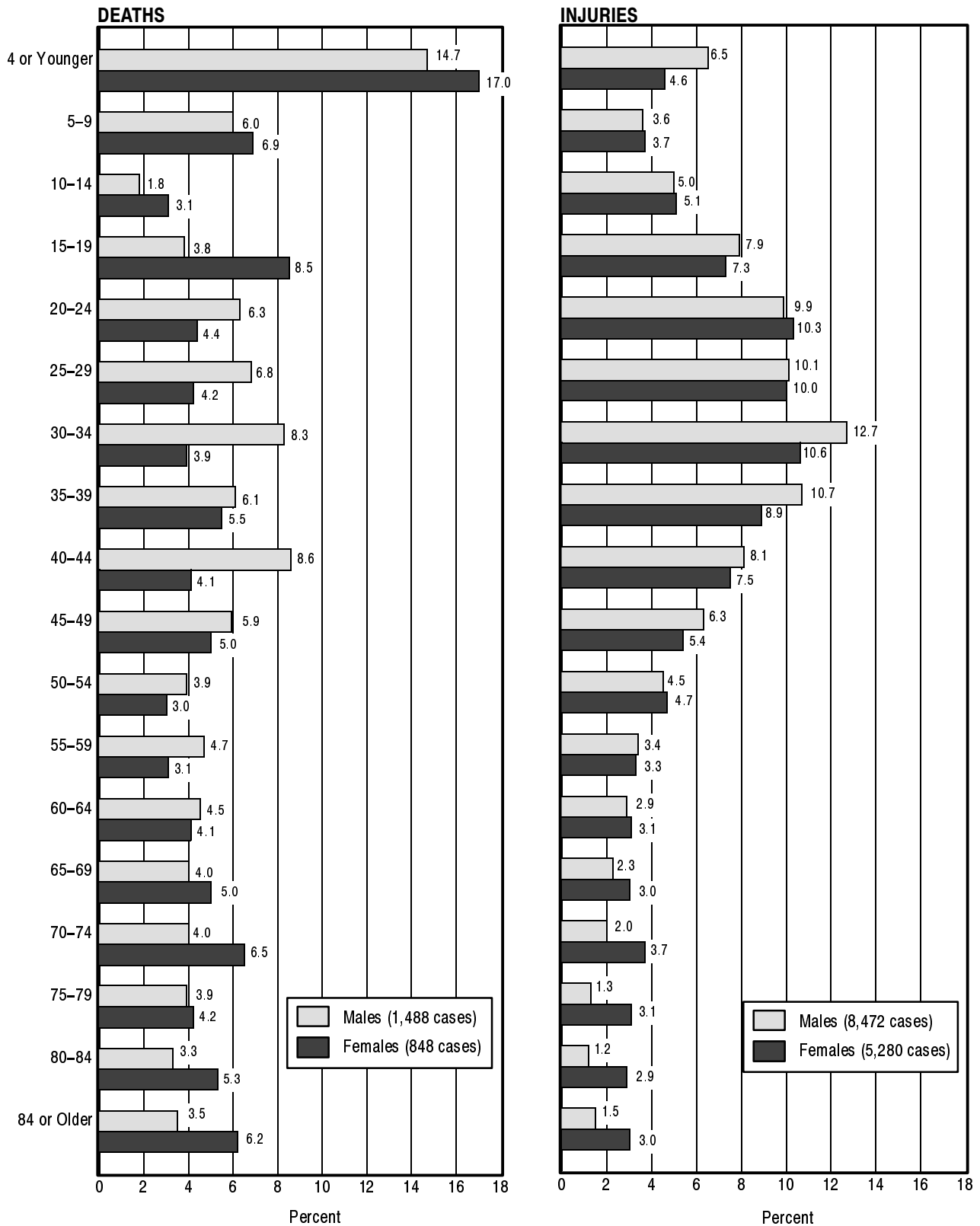
Sources: NFIRS, NFPA Annual Surveys, and Bureau of the Census

Figure 25. 1994 Fire Casualties by Age

deaths. These two peak risk groups comprise more than one-third of fire deaths and represent about equal numbers of fatalities. On the other hand, two-thirds of fire deaths fall in age groups that are not at high risk. The bulk of fire deaths occur to the not so young and not so old. Programs aimed only at the highest risk groups will not reach the majority of victims.

The injury distribution tracks closely the relative risk profile by age, except for the elderly (Figure 25). Ages 20–39 account for 32 percent of fire injuries in 1994. The very young account for 7 percent; the elderly over age 70 account for 8 percent. Although the elderly are at high risk, there are fewer of them in the total population. If their risk continues to be the same, we could expect more and more elderly fire injuries and deaths as the elderly proportion of the population increases. In the meantime, the focus for injury prevention should be on young adults 20–39. It is believed that males in this age group are greater risk takers during fires, resulting in a higher proportion of injuries.

The distribution of fire deaths by age is somewhat different for males versus females. A slightly larger proportion of female deaths in 1994 occurred in the young (through age 19) and again in the elderly (Figure 26). Male fire deaths, by contrast, are higher in the mid-life years, ages 20 to 55. Elderly females have a significantly larger proportion of injuries than males.



Source: NFIRS

Figure 26. 1994 Fire Casualties by Gender and Age

Ethnic Groups

The fire problem cuts across all groups and races, rich and poor, North and South, urban and rural. But it is higher for some groups than for others.

Data on “race” or ethnic group of victims are somewhat ambiguous in a society where many people are of mixed heritages. And many citizens, including firefighters, find it distasteful to report on race. On the other hand, there does seem to be a higher fire problem for some groups, and it can be helpful to identify their problems for use within their own communities.

KINDS OF PROPERTIES WHERE FIRES OCCUR

This section describes the proportions of the fire problem across major types of properties: residential structures, non-residential structures, vehicles, outside properties, and other or unknown properties.⁶

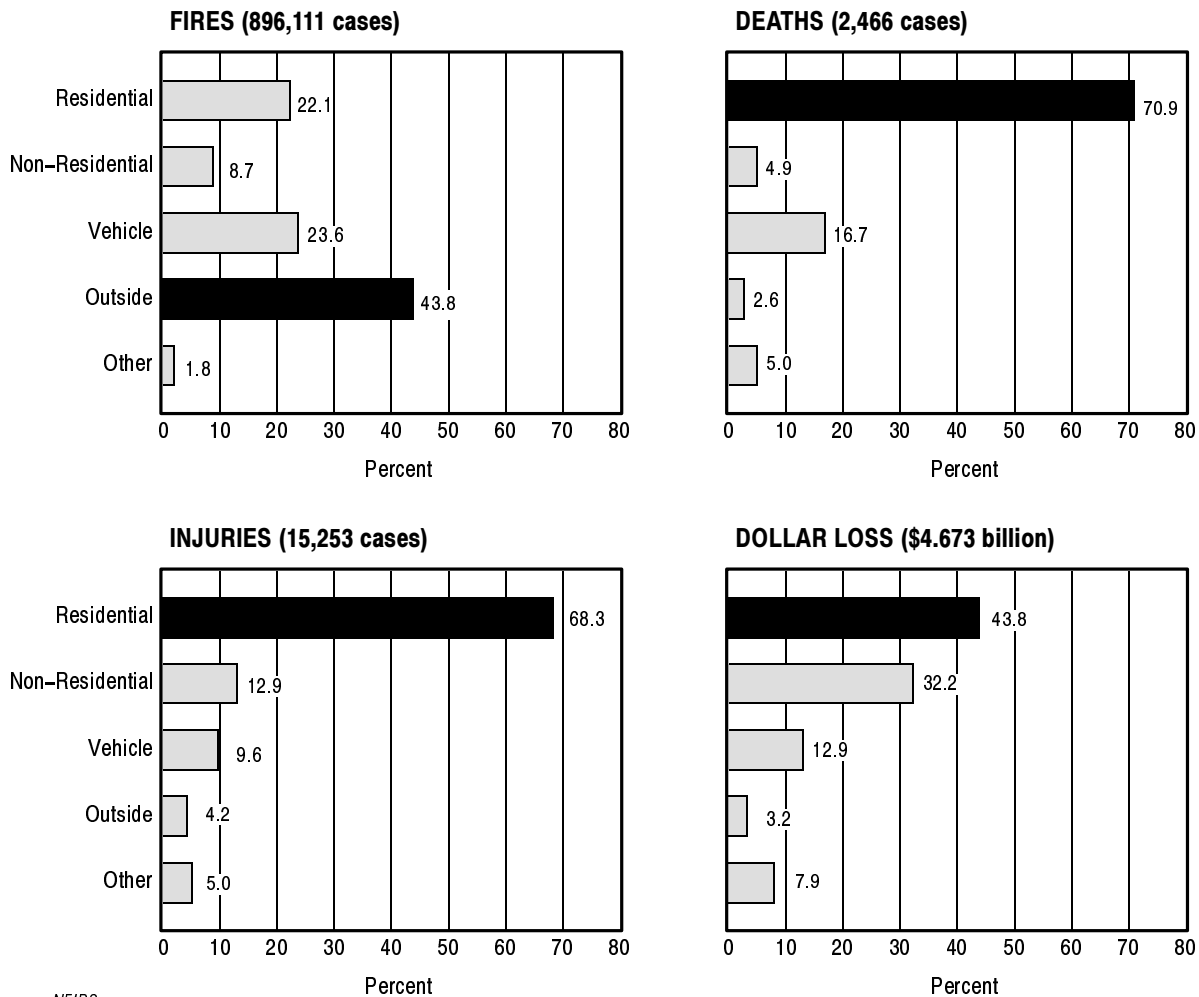
Property Categories

In terms of numbers of fires, the largest category in 1994 (as in all years) is outside fires (44 percent)—in fields, vacant lots, trash, etc. (Figure 27). Many of these fires are intentionally set but do not cause much damage. Residential and non-residential structure fires together comprise only about one-third of all fires. Residential fires outnumber non-residential structure fires by two and a half to one. What may surprise some is the large number of vehicle fires. In fact, one out of every four fires that fire departments attend involves vehicles. Most vehicle fires are associated with accidents. The number of vehicle fires does not include the many vehicle accidents that the fire department responds to but where there is no fire.

By far the largest percentage of deaths, 71 percent, occurs in residences, with the majority of these in one- and two-family dwellings. It may surprise some that such a large share of our fire deaths result from fires that occur in houses and apartments. Great attention is given to large, multiple death fires in public places such as hotels, nightclubs, and office buildings. But in fact, the major attention-getting fires that kill 10 or more people are few in number and constitute only a small portion of fire deaths. Firefighters generally are doing a good job in protecting public properties in this country. The area with the largest problem is where it is least suspected—in people’s homes. Fire prevention efforts should be increasingly focused on this part of the overall fire problem.

Vehicles accounted for the second largest percentage of fire deaths, 17 percent. As most vehicle fires are the result of collisions, there are virtually no fire prevention programs designed to address this problem other than as part of vehicle design and as a byproduct of accident prevention in general.

⁶ The percentage of fire deaths in the major property types differs somewhat between NFIRS and the NFPA survey. These differences are discussed in Appendix A.



Source: NFIRS

Figure 27. 1994 Fires and Fire Losses by General Property Type

Only 5 percent of the 1994 fire deaths occurred in commercial and public properties. Outside and other (unknown) fires, including wildfires, were a very small factor in fire deaths (8 percent).

As Figure 27 shows, the picture is somewhat similar for fire injuries, with more than two-thirds of all injuries occurring in residences. Non-residential structures are the location of 13 percent of all fire injuries. Vehicles account for another 10 percent. Outside and other fires account for just 9 percent of the fire injuries.

The picture changes sharply for dollar loss and fire incidence. Three-quarters of all dollar loss is from residential and non-residential structures. The proportion of dollar loss from outside fires may be understated because the destruction of trees, grass, etc., is given zero value in fire reports if it is not commercial cropland or timber.

All relative percentages for property type fires were the same in 1994 as they were in 1990.

Trends

The proportions of the fire problem by property type have remained quite steady over time. This is another reasonableness check for NFIRS. In terms of numbers of fires, the proportion of the problem due to outside property has increased slightly from 41 percent to 44 percent over the 10-year period, the proportion in vehicles and outside has remained constant, and the proportion in residential and non-residential structures has declined slightly (Figure 28). It has been suggested that the outside property increase might be due to an increasing number of rural departments reporting to NFIRS.

Over the 10-year period, residential property fires have ranged from 69 to 75 percent of total fire deaths, with an overall downward trend. Non-residential structures and outside fires have remained steady and represent a small proportion of deaths. The trends in vehicle fires, however, has been steadily increasing. In other words, vehicles are becoming a more important factor in fire deaths.

The trends in property types for injuries have been stable over the 10-year period, perhaps because of the much larger sample of injuries than deaths.

Dollar loss has greater trend fluctuations because this measure is highly sensitive to a few very large fires and whether they are included or omitted in the sample of fires on which estimates are based. The classic example is the 1986 pineapple fire in Hawaii ("outside" property type), which destroyed an enormous pineapple crop and caused a peak in outside fire losses that forced the other percentages downward. Similarly, in 1994 there was a huge increase in the "other" fire category.

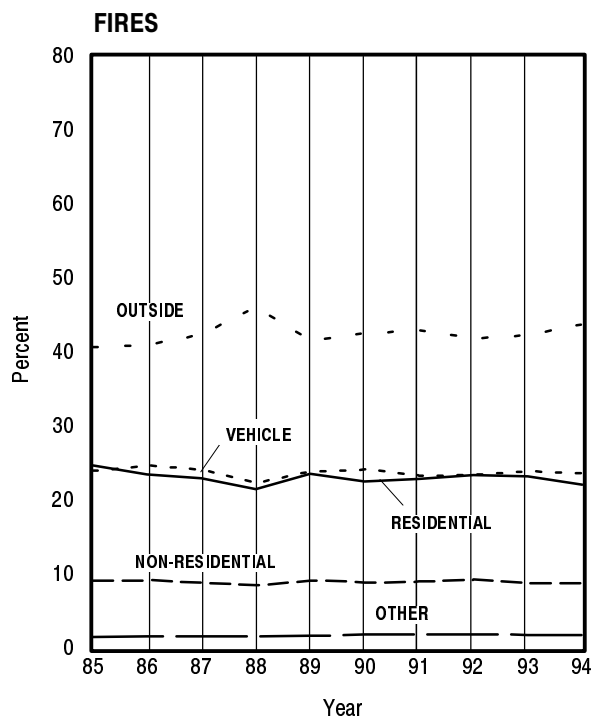
SEVERITY OF FIRES

Figure 29 shows the severity of fires in 1994 as measured by deaths and injuries per thousand fires and by dollar loss per fire. These indicators can increase if there are more casualties or more damage per fire (the numerator) or if fewer minor fires are reported (the denominator).

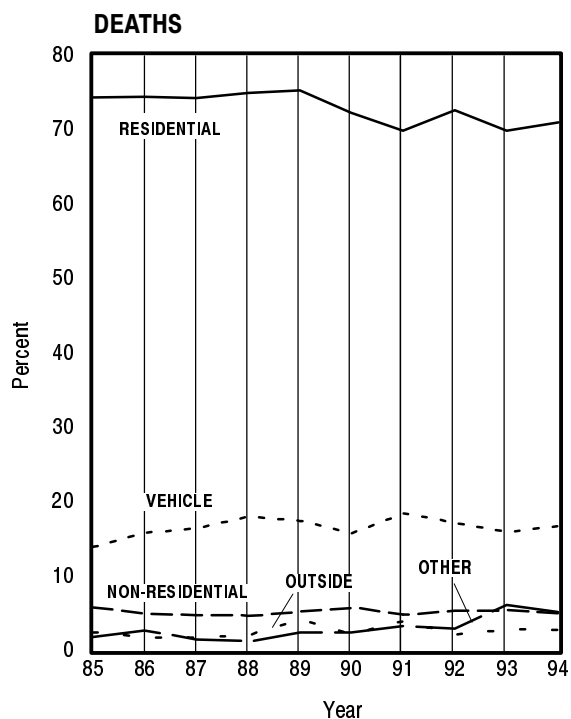
As shown, residential fires have the highest death and injury rates—another important reason for prevention programs to focus on home fire safety. Usually, non-residential structure fires have the highest dollar loss per fire. In 1994, however, there was an unusually large loss in the "other" category.

The trends in severity over the 10-year period are shown in Figure 30. Residential fire severity increased slightly over the 10-year period in terms of deaths per fire and increased by 10 percent in terms of injuries per fire.

Non-residential severity remained relatively constant in both deaths and injuries for fire. Other fire (including unspecified property types) has relatively high severities but represents only small numbers of fires and fire deaths; it is a miscellaneous category.



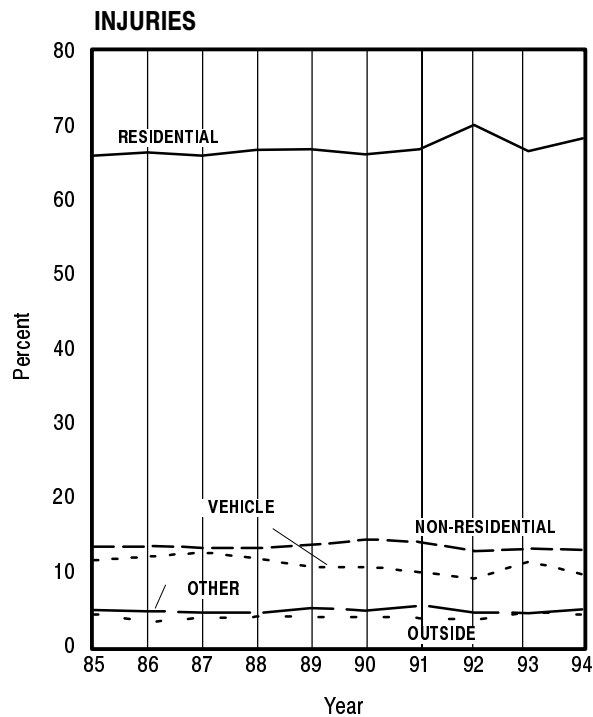
	Residential	Non-Residential	Vehicle	Outside	Other
1985	24.7%	9.1%	24.0%	40.7%	1.5%
1986	23.5	9.2	24.7	41.0	1.6
1987	23.0	8.8	24.1	42.4	1.6
1988	21.5	8.5	22.4	46.1	1.6
1989	23.6	9.1	23.9	41.6	1.7
1990	22.5	8.9	24.2	42.6	1.9
1991	22.9	9.0	23.3	42.9	1.9
1992	23.4	9.3	23.5	41.9	1.9
1993	23.2	8.8	23.9	42.3	1.8
1994	22.1	8.7	23.6	43.8	1.8



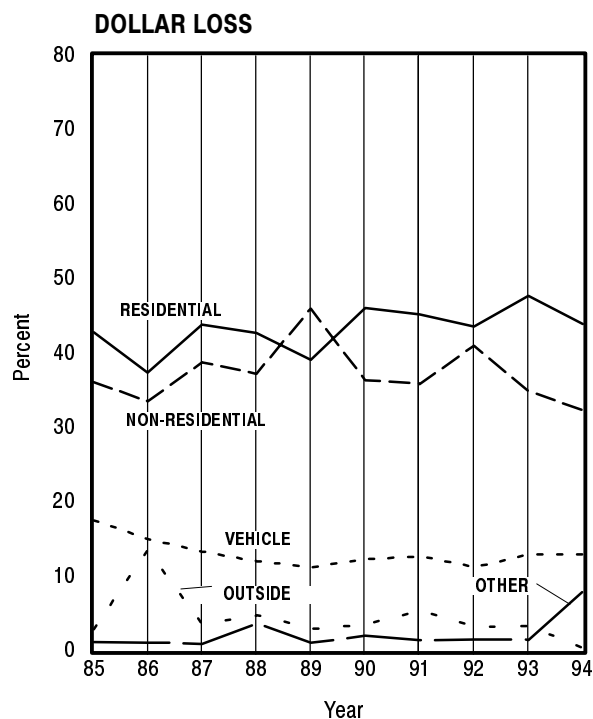
	Residential	Non-Residential	Vehicle	Outside	Other
1985	74.3%	5.7%	13.9%	2.4%	1.8%
1986	74.4	4.9	15.8	1.7	2.6
1987	74.2	4.7	16.4	1.8	1.4
1988	74.9	4.6	17.9	2.0	1.2
1989	75.2	5.2	17.3	4.1	2.4
1990	72.2	5.7	15.7	2.1	2.4
1991	69.8	4.8	18.4	3.9	3.2
1992	72.6	5.3	17.1	2.1	2.9
1993	69.8	5.4	15.9	2.8	6.1
1994	70.9	4.9	16.7	2.6	5.0

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Figure 28. Trends in Fires and Fire Losses by General Property Type



	Residential	Non-Residential	Vehicle	Outside	Other
1985	65.9%	13.4%	11.6%	4.3%	4.9%
1986	66.4	13.5	12.1	3.3	4.7
1987	65.9	13.2	12.6	3.8	4.5
1988	66.7	13.2	11.7	4.0	4.4
1989	66.8	13.6	10.6	3.9	5.1
1990	66.1	14.3	10.7	4.0	4.8
1991	66.8	14.0	9.9	3.7	5.5
1992	70.1	12.8	9.1	3.6	4.5
1993	66.5	13.1	11.4	4.6	4.4
1994	68.3	12.9	9.6	4.2	5.0



	Residential	Non-Residential	Vehicle	Outside	Other
1985	42.7%	36.0%	17.4%	2.8%	1.1%
1986	37.3	33.4	14.9	13.5	1.0
1987	43.7	38.7	13.2	3.6	0.8
1988	42.6	37.1	11.9	4.7	3.6
1989	39.0	45.9	11.1	2.9	1.0
1990	46.0	36.3	12.3	3.5	1.9
1991	45.1	35.7	12.6	5.3	1.3
1992	43.5	40.9	11.1	3.1	1.4
1993	47.6	34.8	12.9	3.3	1.3
1994	43.8	32.2	12.9	3.2	7.9

Source: NFIRS

Figure 28. Trends in Fires and Fire Losses by General Property Type (cont'd)

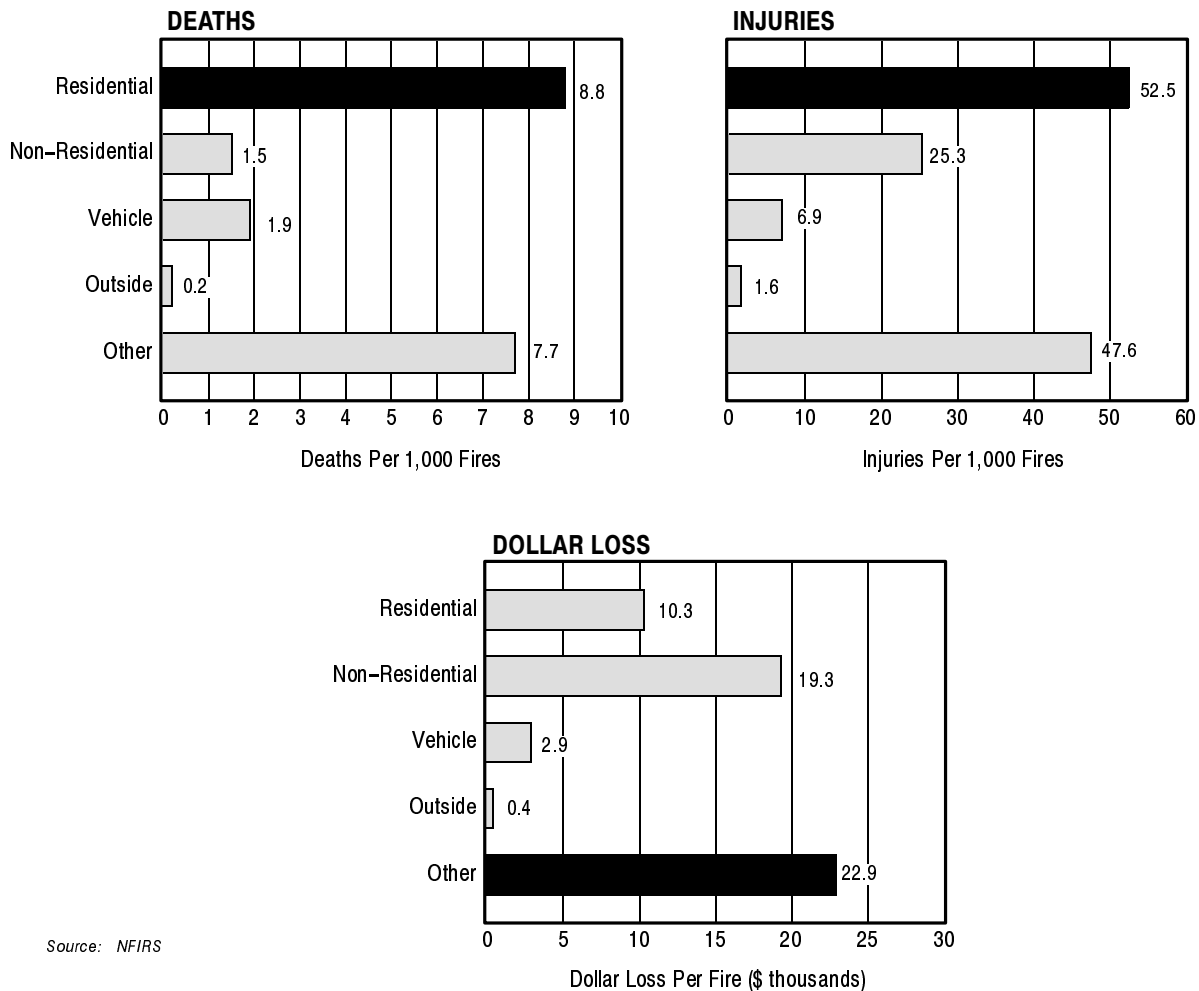
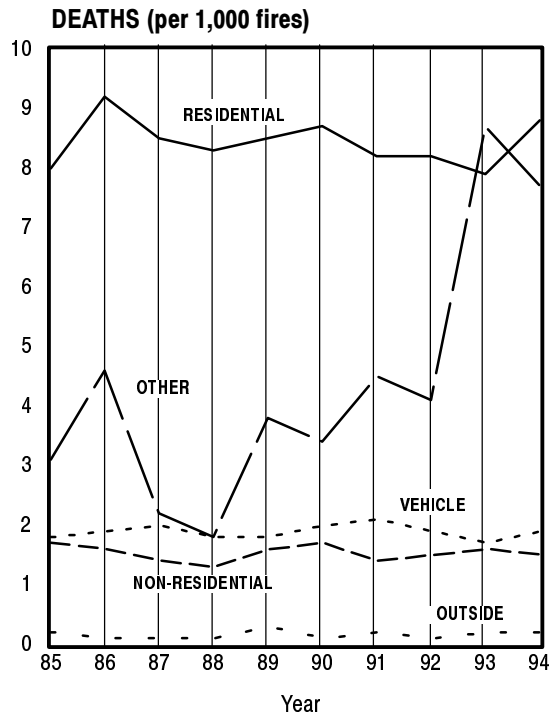


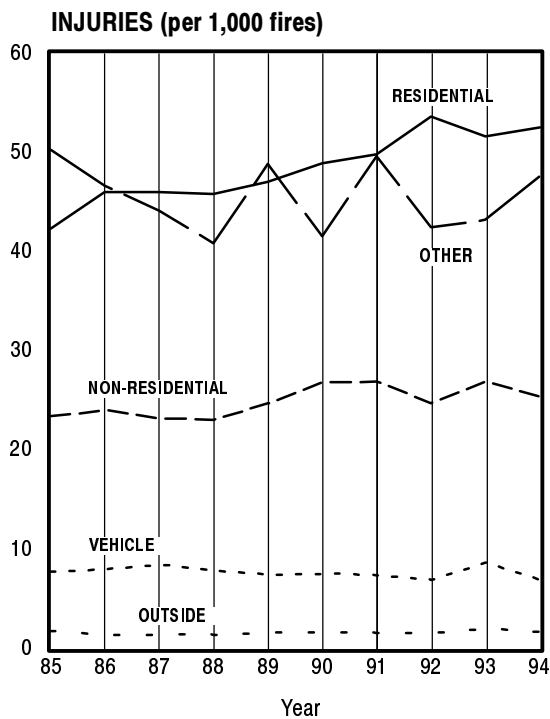
Figure 29. Severity of Fire Losses in 1994 by General Property Type

Adjusted dollar loss per fire changed significantly. Non-residential fires averaged \$23,200 over 10 years per fire with wide fluctuations: from a low of \$19,300 per fire in 1994 to a high of \$30,300 per fire in 1990. Fire loss decreased for most categories. Residential losses increased a significant 12 percent, and from 1993 to 1994 there was an uncharacteristic increase (sixfold) in “other” fires due to one large (\$300 million) explosion.

There are many reasons for increases in loss per fire in residential occupancies. It could reflect a more affluent society in part, but affluence has not increased as sharply as the losses per fire adjusted for inflation. More damage per fire also may be due to faster spreading fires. It could also be from the use of smoke detectors, where small fires are put out and the fire department is never called. One clue as to the underlying cause for the increase is that the number and percent of residential fires that spread to the whole structure (that is, were not confined to the floor of origin) increased sharply from 1985 to 1994. This is an area needing further study.



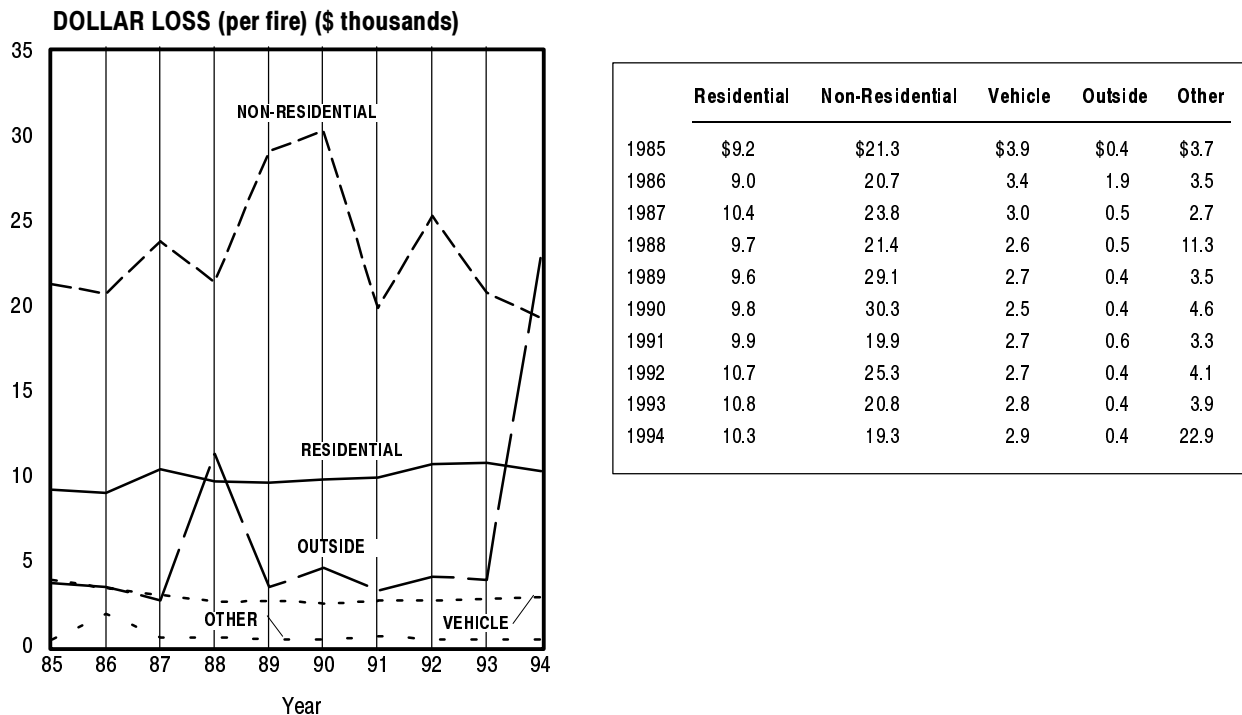
	Residential	Non-Residential	Vehicle	Outside	Other
1985	8.0	1.7	1.8	0.2	3.1
1986	9.2	1.6	1.9	0.1	4.6
1987	8.5	1.4	2.0	0.1	2.2
1988	8.3	1.3	1.8	0.1	1.8
1989	8.5	1.6	1.8	0.3	3.8
1990	8.7	1.7	2.0	0.1	3.4
1991	8.2	1.4	2.1	0.2	4.5
1992	8.2	1.5	1.9	0.1	4.1
1993	7.8	1.6	1.7	0.2	8.7
1994	8.8	1.5	1.9	0.2	7.7



	Residential	Non-Residential	Vehicle	Outside	Other
1985	42.3	23.4	7.7	1.7	50.2
1986	46.0	24.0	8.0	1.3	46.6
1987	46.0	23.1	8.4	1.4	44.1
1988	45.8	23.0	7.8	1.3	40.8
1989	47.0	24.7	7.4	1.6	48.8
1990	48.9	26.8	7.5	1.6	41.5
1991	49.8	26.9	7.3	1.5	49.6
1992	53.6	24.7	6.9	1.5	42.4
1993	51.6	26.9	8.6	2.0	43.2
1994	52.5	25.3	6.9	1.6	47.6

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Figure 30. Trends in Severity of Fire Losses by General Property Type



Source: NFIRS

Figure 30. Trends in Severity of Fire Losses by General Property Type (cont'd)

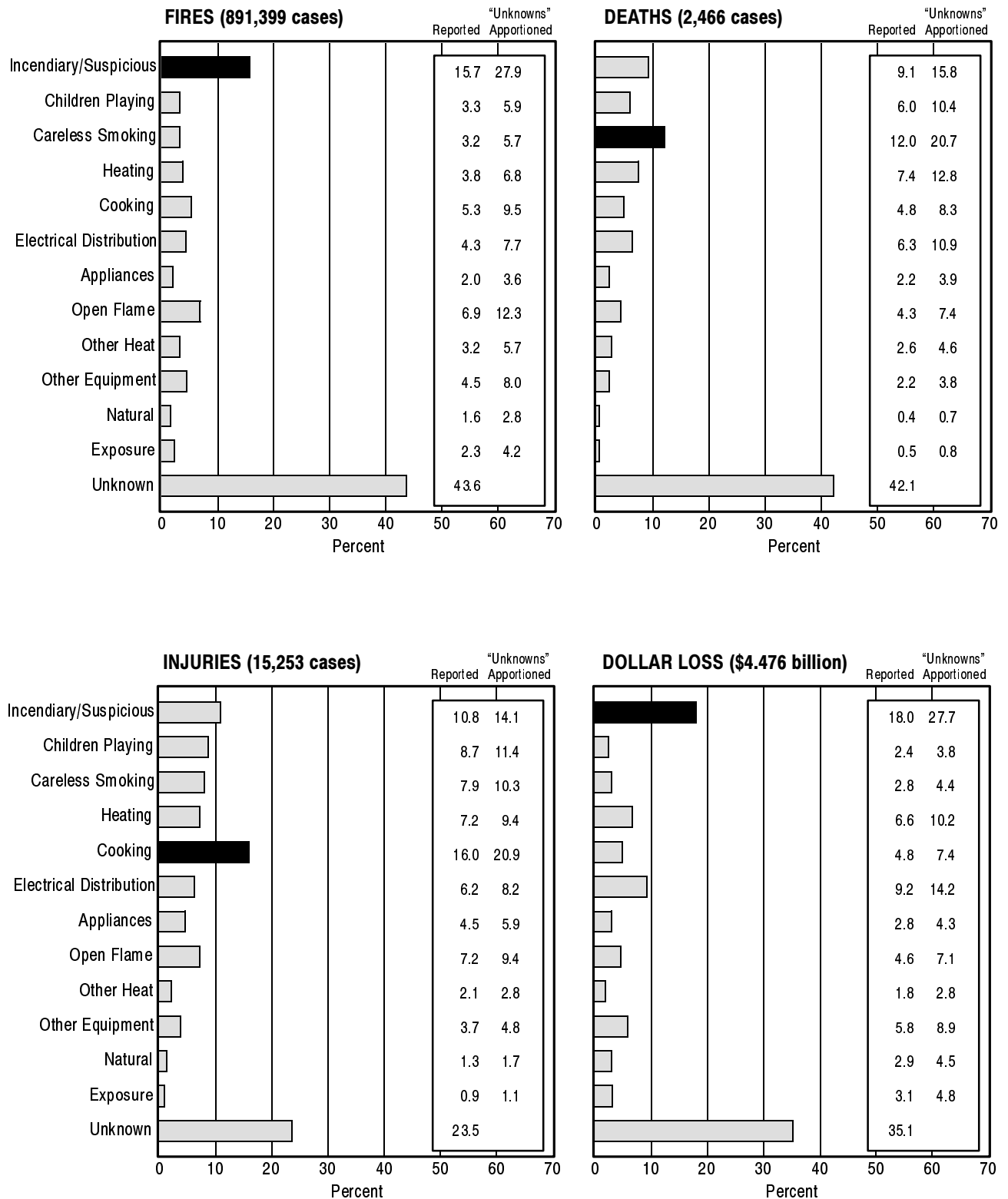
CAUSES OF FIRES AND FIRE LOSSES

Figure 31 shows the profile of the major causes of fires, fire deaths and injuries, and direct dollar loss in 1994. Here, fire deaths occurring in all the different occupancies are grouped together. The top three causes are careless smoking (21 percent), incendiary and suspicious (or arson) (16 percent), and heating (13 percent). These percentages are adjusted, which proportionally spreads the unknowns over the other 12 causes. The leading cause of injuries is cooking (21 percent), followed by arson (14 percent) and children playing (11 percent). Careless smoking dropped from third in 1990 to fourth in 1994.

The three leading causes of fire deaths are the same for both sexes (Figure 32). The proportions of each of the remaining causes are surprisingly similar too. Males had slightly more fire deaths from open flame and other heat and females slightly more from cooking and electrical fires.

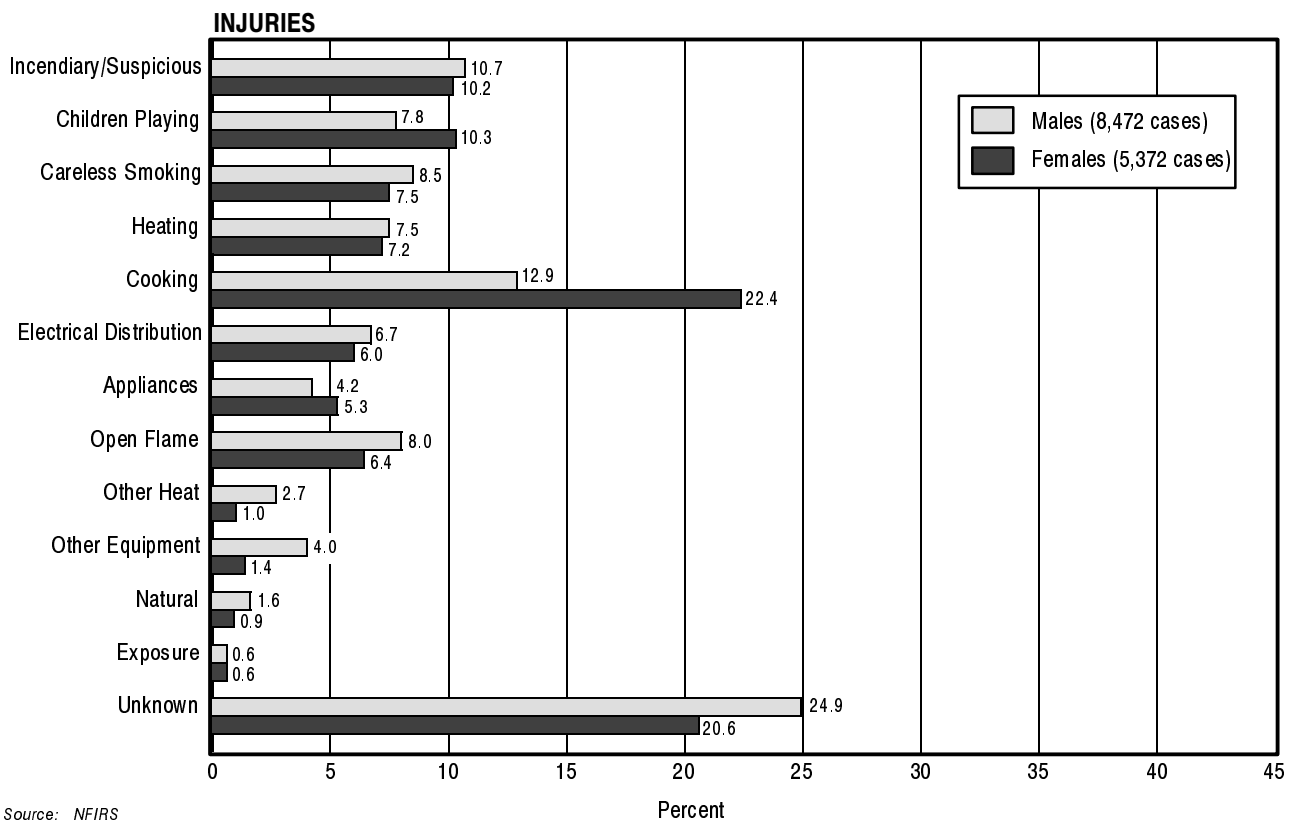
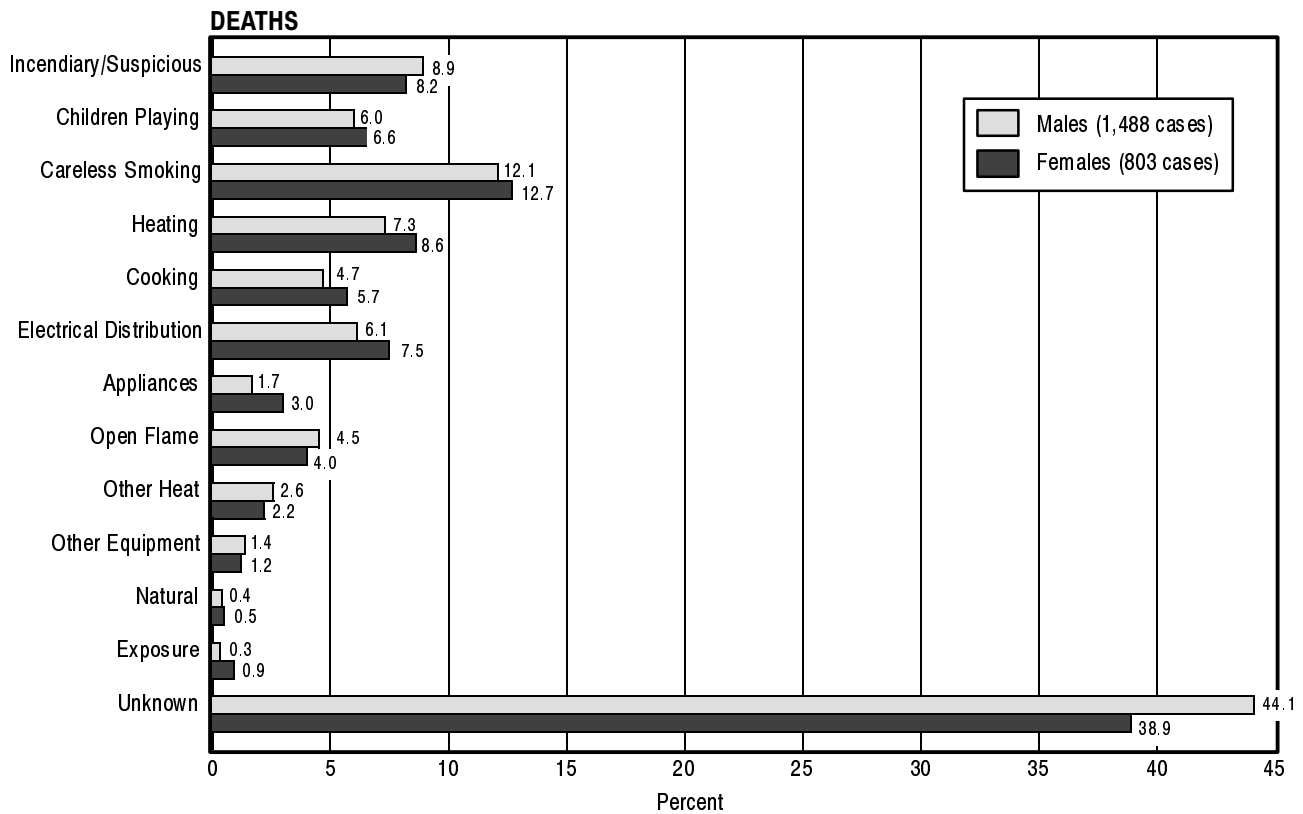
Unlike fire deaths, there is a sharp difference between the sexes in their injury cause profiles. While the leading cause, cooking, is the same, the relative role that the remaining causes play in fire injuries between men and women differs greatly in 1994. Moreover, the leading cause for both sexes is cooking, but nearly twice as many women are injured in cooking fires as men (28 vs. 17 percent). For women, children playing and arson are the second and third leading causes, although combined they account for fewer injuries than cooking. For men, arson is the second leading cause of fire injuries, followed by careless smoking. Arson is by far the leading cause of fires and direct dollar loss.

Causes of fire casualties are discussed in more detail by occupancy type in Chapters 3 and 4.



Source: NFIRS

Figure 31. Causes of 1994 Fires and Fire Losses



Source: NFIRS

Figure 32. Causes of 1994 Fire Casualties by Gender (Unadjusted)

USFA RESOURCES ON THE NATIONAL FIRE PROBLEM

The U.S. Fire Administration has issued two reports that have attracted nationwide attention. *American Burning* is probably the most widely quoted fire protection publication. This report set the stage for national consciousness-raising about the need for as much focus on fire prevention as on fire suppression. *Fire Death Rate Trends: An International Perspective* explores the magnitude and the nature of the fire death problem in the United States. It provides a statistical portrait of fire death rates for 14 industrialized nations, and presents observations about key institutional and attitudinal differences between the U.S. and industrialized countries with significantly lower fire death rates. Chapter 6 in this document provides data extracted from this report.

These publications are available by writing to:

U.S. Fire Administration
Federal Emergency Management Agency
Publications Center, Room N310
16825 S. Seton Avenue
Emmitsburg, MD 21727

Documents may also be ordered via the World Wide Web: <http://www.usfa.fema.gov>. USFA publications are free.